

PowerFlex 750-Series AC Drives

Frame 8 and Larger



Important User Information

Solid-state equipment has operational characteristics differing from those of electromechanical equipment. Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls (publication [SGI-1.1](#) available from your local Rockwell Automation® sales office or online at <http://www.rockwellautomation.com/literature/>) describes some important differences between solid-state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid-state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.





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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.

	WARNING: Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.
	ATTENTION: Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence.
	SHOCK HAZARD: Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.
	BURN HAZARD: Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.
IMPORTANT	Identifies information that is critical for successful application and understanding of the product.

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Summary of Changes

This manual revision contains the following new and updated information.

Topic	Page
Updated the Spare Part Compatibility with Series A and Series B Drives table to include a new Series B Converter Unit part number.	25
Updated the Converter Components Identification table to reflect the addition of the stirring fan kit.	72
Updated the Converter Assembly Components Diagram 2 to reflect the addition of the stirring fan kit.	76
Added the new Converter Stirring Fan Removal/Installation procedure.	119
Updated the 24V/240V Power Wire Harness Removal/Installation procedure to include disconnecting the stirring fan.	120
Updated the DC Input with Precharge Assembly Components Identification table to reflect the addition of the stirring fan kit.	146
Updated the DC Input with Precharge Assembly Components Diagram 2 to reflect the addition of the stirring fan kit.	150
Updated the 24V/120V/240V Wire Harness Removal/Installation procedure to include disconnecting the stirring fan.	176
Added the new DC Input with Precharge Assembly Stirring Fan Removal/Installation procedure.	196
Updated the Converter Schematic Diagram (400VAC and 600VAC Classes AC Input Drive) to reflect the addition of the strring fan.	373
Updated the DC Input with Precharge Assembly Schematic Diagram (540VDC, 650VDC, 810VDC, and 932VDC Classes Common DC Input Drives) to reflect the addition of the strring fan.	376

Notes:

Preface	Who Should Use this Manual.....	17
	Additional Resources.....	17
	Chapter 1	
Before You Begin Testing, Maintenance, or Repairs	General Precautions.....	20
	Qualified Personnel	20
	Personal Safety	20
	Product Safety	20
	Class 1 LED Product	20
	Removing Power from the Drive	21
	Drive Input Power Configurations	23
	Drive Series Components Compatibility.....	25
	Spare Part Compatibility with Series A and Series B Drives	25
	Firmware Version Compatibility with Series A and B Circuit Boards.....	26
	Series A and B Converter Components and Drive Input Power Compatibility	26
	Commonly Used Tools.....	27
	Service Tools.....	27
	Software Tools.....	27
	Fastener/Tool/Torque Information	28
	Fastener Torque Sequences	29
	Chapter 2	
Periodic Maintenance	Recommended Preventative Maintenance.....	31
	Schedule Codes Explanations.....	33
	Maintenance Of Industrial Control Equipment	34
	Solid State Devices	36
	Chapter 3	
Component Inspection and Test Procedures	Component Inspection and Maintenance.....	38
	Forward and Reverse Biased SCR/Diode Tests	39
	Converter Fuse Tests.....	43
	Converter Gate Lead Resistance Measurements.....	43
	DC Precharge Assembly Fuse Tests.....	45
	Chapter 4	
Control Pod Component Replacement Procedures	Control Pod Components Identification.....	48
	Control Pod Cover Removal/Installation	50
	Removing the Control Pod Cover	50
	Installing the Control Pod Cover	50
	Control Pod Cables Removal/Installation.....	51
	Removing the Control Pod Cables.....	51
	Installing the Control Pod Cables.....	51

Fiber-Optic Cable Removal/Installation (Frame 8).....	52
Removing the Fiber-Optic Cable (Frame 8).....	52
Installing the Fiber-Optic Cable (Frame 8).....	55
Main Control Board Removal/Installation	56
Removing the Main Control Board (Control Pod in Drive Enclosure)	56
Installing the Main Control Board	59
Control Pod Removal/Installation.....	59
Removing the Control Pod.....	59
Installing the Control Pod.....	63
Fiber Interface Board Removal/Installation.....	64
Removing the Fiber Interface Board.....	64
Installing the Fiber Interface Board.....	70

Chapter 5

Converter Component Replacement Procedures

Converter Components Identification	72
Converter Left Cover Removal/Installation	77
Removing the Converter Left Cover	77
Installing the Converter Left Cover	77
Converter Right Cover	
(No Control Pod) Removal/Installation	78
Removing the Converter Right Cover (No Control Pod)	78
Installing the Converter Right Cover (No Control Pod)	78
Control Pod Rotation	78
Rotating the Control Pod Forward.....	78
Returning the Control Pod to the Service Position	81
Control Transformer Primary Fuses Removal/Installation.....	81
Removing the Control Transformer Primary Fuses (FU4 and FU5)	81
Installing the Control Transformer Primary Fuse (FU4 and FU5)	81
Control Transformer Secondary Fuse Removal/Installation.....	82
Removing the Control Transformer Secondary Fuse (FU6)	82
Installing the Control Transformer Secondary Fuse (FU6).....	82
Converter EMC Filter Circuit Board Removal/Installation	83
Removing the Converter EMC Filter Circuit Board	83
Installing the Converter EMC Filter Circuit Board.....	84
AC Line Fuse Sense Wire Harness Removal/Installation	85
Removing the AC Line Fuse Sense Wire Harness.....	85
Installing the AC Line Fuse Sense Wire Harness	86
AC Line Fuse Removal/Installation.....	87
Removing the AC Line Fuses (FU1, FU2, and FU3).....	87
Installing AC Line Fuse (FU1, FU2, and FU3).....	89
DC Bus Sense Wire Harness Removal/Installation.....	89
Removing the DC Bus Sense Wire Harness	89
Installing the DC Bus Sense Wire Harness.....	91

Converter Current Sensor Wire Harness Removal/Installation	91
Removing the Converter Current Sensor Wire Harness	91
Installing the Converter Current Sensor Wire Harness	92
Converter Current Sensor Removal/Installation	93
Removing the Converter Current Sensor	93
Installing the Converter Current Sensor	97
Converter SCR Gate Wire Harness Removal/Installation	97
Removing the Converter SCR Gate Wire Harness	97
Installing the Converter SCR Gate Wire Harness	98
Converter SCR Assembly Removal/Installation	99
Removing the Converter SCR Assembly	99
Installing the Converter SCR Assembly	108
Converter Heat Sink Gasket Replacement	108
Removing the Converter Heat Sink Gasket	108
Installing the Converter Heat Sink Gasket	109
Inverter Power Supply Wire Harness Removal/Installation	109
Removing the Inverter Power Supply Wire Harness	109
Installing the Inverter Power Supply Wire Harness	110
AC Line Wire Harness Removal/Installation	111
Removing the AC Line Wire Harness	111
Installing the AC Line Wire Harness	112
Surge Suppressor Sense Wire Harness Removal/Installation	113
Removing the Surge Suppressor Sense Wire Harness	113
Installing the Surge Suppressor Sense Wire Harness	113
Surge Suppressor Removal/Installation	114
Removing the Surge Suppressor	114
Installing the Surge Suppressor	115
Surge Suppressor Assembly Removal/Installation	115
Removing the Surge Suppressor Assembly	115
Installing the Surge Suppressor Assembly	118
Converter Stirring Fan Removal/Installation	119
Removing the Converter Stirring Fan	119
Installing the Converter Stirring Fan	120
24V/240V Power Wire Harness Removal/Installation	120
Removing the 24V/240V Power Wire Harness	120
Installing the 24V/240V Power Wire Harness	125
Control Transformer Primary Wire Harness Removal/Installation ..	126
Removing the Control Transformer Primary Wire Harness	126
Installing the Control Transformer Primary Wire Harness	128
Control Transformer Removal/Installation	128
Removing the Control Transformer	128
Installing the Control Transformer	130
No DC Bus Fuse Wire Harness Removal/Installation (Frame 8 Drives Only)	131
Removing the No DC Bus Fuse Wire Harness	131
Installing the No DC Bus Fuse Wire Harness	131

DC Bus Fuse Wire Harness Removal/Installation (Frame 9 and Larger Drives Only)	132
Removing the DC Bus Fuse Wire Harness	132
Installing the DC Bus Fuse Wire Harness	133
Control Power Isolator Board 24V Wire Harness Removal/Installation (600/690V AC Input Drives Only)	134
Removing the Control Power Isolator Board 24V Wire Harness	134
Installing the Control Power Isolator Board 24V Wire Harness	135
Control Power Isolator Board Removal/Installation (600/690V AC Input Drives Only)	136
Removing the Control Power Isolator Board	136
Installing the Control Power Isolator Board	137
Converter Gate Circuit Board Removal/Installation	137
Removing the Converter Gate Circuit Board	137
Installing the Converter Gate Circuit Board	139
Converter Removal/Installation	140
Removing the Converter from the Inverter Assembly	140
Installing the Converter on the Inverter Assembly	143
Converter Duct Gasket Replacement	143
Removing the Converter Duct Gasket	143
Installing the Converter Duct Gasket	143

Chapter 6

DC Input with Precharge Assembly Component Replacement Procedures

DC Input with Precharge Assembly Components Identification	146
DC Input with Precharge Assembly Left Cover, Top Guard and Left Guard Removal/Installation	151
Removing the DC Input with Precharge Assembly Left Cover, Top Guard and Left Guard	151
Installing the DC Input with Precharge Assembly Left Cover, Top Guard and Left Guard	151
DC Input with Precharge Assembly Right Cover (No Control Pod) Removal/Installation	152
Removing the DC Input with Precharge Assembly Right Cover (No Control Pod)	152
Installing the DC Input with Precharge Assembly Right Cover (No Control Pod)	152
Control Transformer Secondary Fuses Removal/Installation	152
Removing the Control Transformer Secondary Fuses (FU5 and FU6)	152
Installing the Control Transformer Secondary Fuses (FU5 and FU6)	153
DC Bus Output/Sense Wire Harness Removal/Installation	154
Removing the DC Bus Output/Sense Wire Harness	154
Installing the DC Bus Output/Sense Wire Harness	157
Precharge Resistor Assembly Removal/Installation	158
Removing the Precharge Resistor Assembly	158
Installing the Precharge Resistor Assembly	159

Precharge Resistor Jumper Wires Removal/Installation	159
Removing the Precharge Resistor Jumper Wires.....	159
Installing the Precharge Resistor Jumper Wires	160
DC Line Fuses and Fuse Indicators Removal/Installation.....	160
Removing the DC Line Fuses (FU1 and FU2) and Fuse Indicators (SW3 and SW4)	160
Installing the DC Line Fuses (FU1 and FU2) and Fuse Indicators (SW3 and SW4)	162
Precharge Circuit Fuses Removal/Installation	163
Removing the Precharge Circuit Fuses (FU3 and FU4)	163
Installing the Precharge Circuit Fuses (FU3 and FU4).....	163
DC Bus Input Wire Harness Removal/Installation	164
Removing the DC Bus Input Wire Harness.....	164
Installing the DC Bus Input Wire Harness	165
Left Wall Removal/Installation	165
Removing the Left Wall.....	165
Installing the Left Wall	166
Molded Case Switch Wire Terminal Support Removal/Installation ..	167
Removing the Molded Case Switch Wire Terminal Support	167
Installing the Molded Case Switch Wire Terminal Support	167
24V Control Wire Harness Removal/Installation.....	168
Removing the 24V Control Wire Harness.....	168
Installing 24V Control Wire Harness	170
Molded Case Switch Control Wire Harness Removal/Installation ..	171
Removing the Molded Case Switch Control Wire Harness	171
Installing the Molded Case Switch Control Wire Harness	173
Transformer Primary Wire Harness Removal/Installation.....	174
Removing the Transformer Primary Wire Harness.....	174
Installing the Transformer Primary Wire Harness.....	175
24V/120V/240V Wire Harness Removal/Installation	176
Removing the 24V/120V/240V Wire Harness.....	176
Installing the 24V/120V/240V Wire Harness	181
Disconnect Switch Jumper Wires Removal/Installation	182
Removing the Disconnect Switch Jumper Wires	182
Installing the Disconnect Switch Jumper Wires.....	183
Disconnect Switch (SW2), Auxiliary Contact, and Handle Shaft Removal/Installation	183
Removing the Disconnect Switch, Auxiliary Contact and Handle Shaft	183
Installing the Disconnect Switch, Auxiliary Contact and Handle Shaft.....	184
Disconnect Switch Handle Removal/Installation	184
Removing the Disconnect Switch Handle	184
Installing the Disconnect Switch Handle	185
Control Transformer Removal/Installation	185
Removing the Control Transformer	185
Installing the Control Transformer	188

Control Power Isolator Board 24V Wire Harness Removal/Installation (810/932V DC Input Drives Only)	188
Removing the Control Power Isolator Board 24V Wire Harness. .	188
Installing the Control Power Isolator Board 24V Wire Harness .	189
Control Power Isolator Board Removal/Installation (810/932V DC Input Drives Only)	189
Removing the Control Power Isolator Board	189
Installing the Control Power Isolator Board	190
Undervoltage Delay Bracket Removal/Installation	191
Removing the Undervoltage Delay Bracket	191
Installing the Undervoltage Delay Bracket	193
Undervoltage Delay Wire Harness Removal/Installation	194
Removing the Undervoltage Delay Wire Harness	194
Installing the Undervoltage Delay Wire Harness	194
Undervoltage Delay Removal/Installation	195
Removing the Undervoltage Delay	195
Installing the Undervoltage Delay	196
DC Input with Precharge Assembly Stirring Fan Removal/Installation	196
Removing the DC Input with Precharge Assembly Stirring Fan..	196
Installing the DC Input with Precharge Assembly Stirring Fan ..	197
Door Interlock Wire Harness Removal/Installation	197
Removing the Door Interlock Wire Harness	197
Installing the Door Interlock Wire Harness	199
Digital I/O Wire Harness Removal/Installation	199
Removing the Digital I/O Wire Harness	199
Installing the Digital I/O Wire Harness	200
DC Precharge Control Circuit Board Removal/Installation	201
Removing the DC Precharge Control Circuit Board	201
Installing the DC Precharge Control Circuit Board	202
DC Input with Precharge Assembly Removal/Installation	203
Removing the DC Input with Precharge Assembly	203
Installing the DC Input with Precharge Assembly	206
DC Input with Precharge Assembly Duct Gasket Replacement	206
Removing the DC Input with Precharge Assembly Duct Gasket .	206
Installing the DC Input with Precharge Assembly Duct Gasket ..	206

Chapter 7

Inverter Component Replacement Procedures

Inverter Components Identification	210
Common Mode Core Assembly Removal/Installation	215
Removing the Common Mode Core Assembly	215
Installing the Common Mode Core Assembly	215
Internal Stirring Fan Tray Removal/Installation	216
Removing the Internal Stirring Fan Tray	216
Installing the Internal Stirring Fan Tray	216

Heatsink Fan Inlet Screen Removal/Installation	217
Removing the Heatsink Fan Inlet Screen	217
Installing the Heatsink Fan Inlet Screen	217
Heatsink Fan Assembly Removal/Installation	218
Removing the Heatsink Fan Assembly	218
Installing the Heatsink Fan Assembly	219
Inverter Circuit Board Connections Cover Removal/Installation ...	220
Remove the Inverter Circuit Board Connections Cover	220
Install the Inverter Circuit Board Connections Cover	220
Inverter Front Cover Removal/Installation	221
Removing the Inverter Front Cover	221
Installing the Inverter Front Cover	222
Inverter Current Sensors Removal/Installation	222
Removing the Inverter Current Sensors	222
Installing the Inverter Current Sensors	224
Inverter Current Sensor Wire Harness Removal/Installation	225
Removing the Inverter Current Sensor Wire Harness	225
Installing the Inverter Current Sensor Wire Harness	227
Inverter Capacitor Bank Assembly Removal/Installation	228
Removing the Inverter Capacitor Bank Assembly	228
Installing the Inverter Capacitor Bank	230
Capacitor Balance Resistor Assembly Removal/Installation	230
Removing the Capacitor Balance Resistor Assembly	230
Installing the Capacitor Balance Resistors	231
IGBT Flex Bus Bars Removal/Installation	232
Removing the IGBT Flex Bus Bars	232
Installing the IGBT Flex Bus Bars	233
Inverter Gate Board Connection Ribbon Cables Removal/Installation	233
Removing the Inverter Gate Board Connection Ribbon Cables ..	233
Installing the Inverter Gate Board Connection Ribbon Cables ..	235
Inverter Gate Circuit Board Removal/Installation	235
Removing the Inverter Gate Circuit Board	235
Installing the Inverter Gate Circuit Board	236
Rating Plug Removal/Installation	237
Removing the Rating Plug	237
Installing the Rating Plug	238
Power Layer Interface Circuit Board Removal/Installation	238
Removing the Power Layer Interface Circuit Board	238
Installing the Power Layer Interface Circuit Board	240
Power Supply Circuit Board Removal/Installation	240
Removing the Power Supply Circuit Board	240
Installing the Power Supply Circuit Board	243
Power Control Circuit Board Removal/Installation	244
Removing the Power Control Circuit Board	244
Installing the Power Control Circuit Board	246

Inverter Backplane Circuit Board Removal/Installation	247
Removing the Inverter Backplane Circuit Board.	247
Installing the Inverter Backplane Circuit Board	249
Inverter EMC Capacitor Removal/Installation (AC Input Drive Only).....	250
Removing the Inverter EMC Capacitors (AC Input Drive Only)	250
Installing the Inverter EMC Capacitors (AC Input Drive Only).	253
Inverter Side DC Bus Bar Removal/Installation (AC Input Drive Only).....	254
Removing the Inverter Side DC Bus Bars (AC Input Drive Only)	254
Installing the Inverter Side DC Bus Bars (AC Input Drive Only)	261
Inverter Top DC Bus Bar Removal/Installation (Common DC Input Drive Only).....	262
Removing the Inverter Top DC Bus Bars (Common DC Input Drive Only).....	262
Installing the Inverter Top DC Bus Bars (Common DC Input Drive Only).....	267
Inverter IGBT Assembly Removal/Installation (AC Input Drive Only).....	267
Removing the Inverter IGBT Assembly (AC Input Drive Only).	267
Installing the Inverter IGBT Assembly (AC Input Drive Only)..	272
Inverter IGBT Assembly Removal/Installation (Common DC Input Drive Only).....	272
Removing the Inverter IGBT Assembly (Common DC Input Drive Only).....	272
Installing the Inverter IGBT Assembly (Common DC Input Drive Only).....	276
Inverter IGBT Assembly Heatsink Gasket Replacement	276
Removing the Inverter IGBT Assembly Heatsink Gasket	276
Installing the Inverter IGBT Assembly Heatsink Gasket	276
DC Choke Removal/Installation (AC Input Drives Only).....	278
Removing the DC Choke (AC Input Drives Only).....	278
Installing the DC Choke (AC Input Drives Only).....	280
Inverter Wire Harness Removal/Installation.....	280
Removing the Inverter Wire Harness.....	280
Installing the Inverter Wire Harness	283
Discharge Resistor Assembly Removal/Installation.....	284
Removing the Discharge Resistor Assembly	284
Installing the Discharge Resistor Assembly.....	290
Inverter Heatsink Fan Inlet Bottom Cover Removal/Installation....	291
Removing the Inverter Heatsink Fan Inlet Bottom Cover	291
Installing the Inverter Heatsink Fan Inlet Bottom Cover.....	292
Inlet Bottom Cover Gasket Replacement.....	292
Removing the Inlet Bottom Cover Gasket	292
Installing the Inlet Bottom Cover Gasket	292

AC Input Drive Enclosure Component Replacement Procedures	Chapter 8	
	AC Input Drive Enclosure Components Identification.....	293
	IP20, NEMA/UL Type 1 Door Filter Removal/Installation	294
	Removing the Door Filter.....	294
	Installing the Door Filter.....	294
	Exhaust Duct Removal/Installation	295
	Removing the Exhaust Duct.....	295
	Installing the Exhaust Duct	295
	Top Conduit Plate Removal/Installation	296
	Removing the Top Conduit Plate.....	296
	Installing the Top Conduit Plate	296
	Enclosure Door Fan Removal/Installation	297
	Removing the Enclosure Door Fan.....	297
	Installing the Enclosure Door Fan	298
	Enclosure Door Fan Harness Removal/Installation	298
	Removing the Enclosure Door Fan Wire Harness	298
	Installing the Enclosure Door Fan Wire Harness.....	300
	DC Bus Fuse Wire Harness Removal/Installation (Frame 9 and Larger Drives Only).....	301
	Removing the DC Bus Fuse Wire Harness.....	301
	Installing the DC Bus Fuse Wire Harness	302
DC Bus Fuses and Fuse Indicators Removal/Installation (Frame 9 and Larger Drives Only)	303	
Removing the DC Bus Fuses and Fuse Indicators.....	303	
Installing the DC Bus Fuses and Fuse Indicators	305	
Input Common Mode Core Removal/Installation (Frame 9 and Larger Drives Only).....	306	
Removing the Input Common Mode Core	306	
Installing the Input Common Mode Core.....	308	
Cabinet L Bus Bar(s) Removal/Installation.....	309	
Removing the Cabinet L Bus Bar(s)	309	
Installing the Cabinet L Bus Bar(s).....	310	
Cabinet Door EMC Shield Removal/Installation (Frame 10 Drives Only).....	310	
Removing the Cabinet Door EMC Shield	310	
Installing the Cabinet Door EMC Shield.....	312	
Common DC Input Drive Enclosure Component Replacement Procedures	Chapter 9	
	Common DC Input Drive Enclosure Components Identification...	313
	Enclosure Door Fan Removal/Installation	314
	Removing the Enclosure Door Fan.....	314
	Installing the Enclosure Door Fan	315
	Enclosure Door Fan Wire Harness Removal/Installation.....	315
	Removing the Enclosure Door Fan Wire Harness	315
	Installing the Enclosure Door Fan Wire Harness.....	317

DC Back Bus Guards Removal/Installation.....	317
Removing the DC Back Bus Guards.....	317
Installing the DC Back Bus Guards.....	318
120/240V Control Power Input Wire Harness Removal/Installation	319
Removing the 120/240V Control Power Input Wire Harness...	319
Installing the 120/240V Control Power Input Wire Harness...	320
120/240V Control Power Output Wire Harness	
Removal/Installation	320
Removing the 120/240V Control Power Output Wire Harness ..	320
Installing the 120/240V Control Power Output Wire Harness..	321
120/240V Circuit Breaker Removal/Installation.....	321
Removing the 120/240V Circuit Breaker.....	321
Installing the 120/240V Circuit Breaker.....	322
120V UPS Power Input Wire Harness Removal/Installation.....	323
Removing the 120V UPS Power Input Wire Harness.....	323
Installing the 120V UPS Power Input Wire Harness.....	324
Input Common Mode Core Removal/Installation (Common DC Input	
Drives)	324
Removing the Input Common Mode Core	324
Installing the Input Common Mode Core	325

Chapter 10

Option Bay Enclosure Component Replacement Procedures

Option Bay Enclosure Components identification	327
Disconnect Handle Panel Removal/Installation.....	328
Removing the Disconnect Handle Panel.....	328
Installing the Disconnect Handle Panel.....	328
Door Fan Removal/Installation.....	329
Removing the Door Fan.....	329
Installing the Door Fan	330
Thermostat Removal/Installation	330
Removing the Thermostat.....	330
Installing the Thermostat	331
Bottom Conduit Plate Removal/Installation.....	332
Removing the Bottom Conduit Plate.....	332
Installing the Bottom Conduit Plate	332

Chapter 11

Enclosure Cable Components Replacement Procedures (Frame 9 and Larger Drives)

Enclosure Cable Components and Part Numbers	333
24V Wire Harness Removal/Installation (Frame 9 and Larger	
Drives)	334
Removing the 24V Wire Harness (Frame 9 and Larger Drives) ..	334
Installing the 24V Wire Harness (Frame 9 and Larger Drives) ...	337
First Inverter (INV1) Fiber-optic Cable Removal/Installation	338
Removing the First Inverter (INV1) Fiber-optic Cable.....	338
Installing the First Inverter (INV1) Fiber-optic Cable	341

Second Inverter (INV2) Fiber-optic Cable Removal/Installation . . .	342
Removing the Second Inverter (INV2) Fiber-optic Cable	342
Installing the Second Inverter (INV2) Fiber-optic Cable	346
Third Inverter (INV3) Fiber-optic Cable Removal/Installation	347
Removing the Third Inverter (INV3) Fiber-optic Cable	347
Installing the Third Inverter (INV3) Fiber-optic Cable	351
Fiber-optic Spool Removal/Installation	351
Removing the Fiber-optic Spool	351
Installing the Fiber-optic Spool	352

Chapter 12

IP54, NEMA/UL Type 12 Enclosure Components Replacement Procedures

IP54, NEMA/UL Type 12 Enclosure Components and Part Numbers	353
Cabinet Blower Harness Removal/Installation	354
Removing the Cabinet Blower Harness	354
Installing the Cabinet Blower Harness	355
Cabinet Blower Exhaust Filters Removal/Installation	355
Removing the Cabinet Blower Exhaust Filters	355
Installing the Cabinet Blower Exhaust Filters	356
Cabinet Door Filters Removal/Installation	356
Removing the Cabinet Door Filters	356
Installing the Cabinet Door Filters	357
Cabinet Door Filter Cassette Removal/Installation	358
Removing the Cabinet Door Filter Cassette	358
Installing the Cabinet Door Filter Cassette	358
Cabinet Door Gasket Removal/Installation	359
Removing the Cabinet Door Gasket	359
Installing the Cabinet Door Gasket	359

Chapter 13

Start-Up After Repairs

Before Applying Power to the Drive	361
Testing With the Motor Without a Mechanical Load	363

Appendix A

Schematics

Frame 8 AC Input Drive Schematic Diagram (400VAC and 600VAC Classes)	366
Frame 9 AC Input Drive Schematic Diagram (400VAC and 600VAC Classes)	367
Frame 10 AC Input Drive Schematic Diagram (400VAC and 600VAC Classes)	368
Frame 8 Common DC Input Drive Schematic Diagram (540VDC, 650VDC, 810VDC, and 932VDC Classes)	369
Frame 9 Common DC Input Drive Schematic Diagram (540VDC, 650VDC, 810VDC, and 932VDC Classes)	370
Frame 10 Common DC Input Drive Schematic Diagram (540VDC, 650VDC, 810VDC, and 932VDC Classes)	371

Control Pod Schematic Diagram	372
Converter Schematic Diagram (400VAC and 600VAC Classes AC Input Drive)	373
Frame 8 Control Power Isolator Board Wiring Diagrams (600VAC Class AC Input Drive, and 810VDC and 932VDC Classes Common DC Input Drive)	374
Frame 9 Control Power Isolator Board Wiring Diagrams (600VAC Class AC Input Drive, and 810VDC and 932VDC Classes Common DC Input Drive)	374
Frame 10 Control Power Isolator Board Wiring Diagrams (600VAC Class AC Input Drive, and 810VDC and 932VDC Classes Common DC Input Drive)	375
DC Input with Precharge Assembly Schematic Diagram (540VDC, 650VDC, 810VDC, and 932VDC Classes Common DC Input Drives)	376
DC Input with Precharge Devices Schematic Diagrams	377
Inverter Circuit Board Schematic Diagram (All Drive Configurations)	378
Inverter Power Layer Schematic Diagram (All Drive Configurations)	379
AC Input Drive Control Transformer Schematic Diagram	380
DC Input with Precharge Assembly Control Transformer Schematic Diagram	380
Inverter Main Blower and Capacitor Bank Cooling Fan Wire Harness Diagram	381
Cabinet Cooling Wiring Diagrams	381

Appendix B

Circuit Board Interconnections

Inverter Board Interconnections Diagram 1	384
Inverter Board Interconnections Diagram 2	385
Control Board Interconnections Diagram 1	386
Control Board Interconnections Diagram 2	387

Appendix C

History of Changes

750-TG001D-EN-P, April 2012.....	389
750-TG001C-EN-P, January 2012	390
750-TG001B-EN-P, October 2011	390

Index

This manual provides a recommended preventative maintenance schedule, major component test and hardware replacement procedures, and schematic diagrams for frame 8 and larger PowerFlex 750-Series AC drives. See Drive Input Power Configurations on page [23](#) for more information.

It is highly recommended that you obtain a copy of the PowerFlex 750-Series AC Drives Programming Manual, publication [750-PM001](#), which contains fault/ alarm and programming information to assist you in troubleshooting drive errors and determining if repairs are necessary.

Who Should Use this Manual

This manual is intended for qualified service personnel responsible for repairing frame 8 and larger PowerFlex 750-Series AC drives. You should have previous experience with, and an understanding of, electrical terminology, procedures, required troubleshooting equipment, equipment protection procedures and methods, and safety precautions. See safety related practices contained in publication NFPA 70E, Standard for Electrical Safety in the Work Place.

Additional Resources

Additional drive service and software/firmware support information is available on the Allen-Bradley Drives Service and Support website: <http://www.ab.com/support/abdrives/>.

A complete list of spare parts for PowerFlex 755 Frame 8 drives is available on the Allen-Bradley web site at: <http://www.ab.com/support/abdrives/powerflex70/PF7ReleasedParts.pdf>

The following table lists publications that provide general drive related information.

Resource	Description
Wiring and Grounding Guidelines for Pulse Width Modulated (PWM) AC Drives, publication DRIVES-IN001	Provides basic information needed to properly wire and ground PWM AC drives.
Safety Guidelines for the Application, Installation and Maintenance of Solid State Control, publication SGL-1.1	Provides general guidelines for the application, installation, and maintenance of solid-state control.
A Global Reference Guide for Reading Schematic Diagrams, publication 100-2.10	Provides a simple cross-reference of common schematic/ wiring diagram symbols used throughout various parts of the world.
Guarding Against Electrostatic Damage, publication 8000-4.5.2	Provides practices for guarding against Electrostatic damage (ESD)
Product Certifications website, http://ab.com	Provides declarations of conformity, certificates, and other certification details.

The following table lists publications that provide information about PowerFlex 750-Series drives.

Resource	Description
PowerFlex 750-Series Drive Installation Instruction, 750-IN001	Provides the basic steps required to install a PowerFlex® 750-Series AC drive.
PowerFlex 750-Series AC Drives Programming Manual, publication 750-PM001	Provides information needed to start-up, program and troubleshoot PowerFlex 750-Series AC drives.
PowerFlex 755 Drive Embedded EtherNet/IP Adapter User Manual, publication 750COM-UM001	Provides information on installing, configuring, and troubleshooting the Embedded EtherNet/IP Adapter for PowerFlex 755 AC drives.
Safe Speed Monitor Option Module for PowerFlex 750-Series AC Drives Safety Reference Manual, publication 750-RM001	Explains how the PowerFlex 750-Series AC drive can be used in Safety Integrity Level (SIL) CL3, Performance Level [PL(e)], or Category (CAT) 4 applications and provides information on installing, configuring, and troubleshooting the PowerFlex Safe Speed Monitor Option module.
PowerFlex 750-Series AC Drives Technical Data, publication 750-TD001	Provides information on product features and benefits, options and technical specifications information.

You can view or download publications at <http://www.rockwellautomation.com/literature/>. To order paper copies of technical documentation, contact your local Rockwell Automation distributor or sales representative.

Before You Begin Testing, Maintenance, or Repairs

Topic	Page
General Precautions	20
Removing Power from the Drive	21
Drive Input Power Configurations	23
Drive Series Components Compatibility	25
Commonly Used Tools	27
Fastener/Tool/Torque Information	28
Fastener Torque Sequences	29

This chapter provides information you should know before you begin tests, maintenance, or repairs on drive components.

General Precautions

Read the following precautions before you begin testing components, performing maintenance, or repairing the drive.

Qualified Personnel



ATTENTION: Only qualified personnel familiar with adjustable frequency AC drives and associated machinery should plan or implement the installation, start-up and subsequent maintenance of the system. Failure to comply may result in personal injury and/or equipment damage.

Personal Safety



ATTENTION: To avoid an electric shock hazard, verify that the voltage on the bus capacitors has discharged completely before servicing. Measure the DC bus voltage at the -DC and +DC TESTPOINT sockets on the front of the power module (see Removing Power from the Drive on page [21](#) for location).



ATTENTION: Potentially fatal voltages may result from improper usage of an oscilloscope and other test equipment. The oscilloscope chassis may be at a potentially fatal voltage if not properly grounded. If an oscilloscope is used to measure high voltage waveforms, use only a dual channel oscilloscope in the differential mode with X 100 probes. It is recommended that the oscilloscope be used in the A minus B Quasi-differential mode with the oscilloscope chassis correctly grounded to an earth ground.

Product Safety



ATTENTION: This drive contains ESD (Electrostatic Discharge) sensitive parts and assemblies. Static control precautions are required when installing, testing, servicing or repairing this assembly. Component damage may result if ESD control procedures are not followed. If you are not familiar with static control procedures, reference Guarding Against Electrostatic Damage, publication 8000-4.5.2 or any other applicable ESD protection handbook.

Class 1 LED Product



ATTENTION: Hazard of permanent eye damage exists when using optical transmission equipment. This product emits intense light and invisible radiation. Do not look into module ports or fiber-optic cable connectors.

Removing Power from the Drive



ATTENTION: To avoid an electric shock hazard, verify that the voltage on the bus capacitors has discharged completely before servicing. Measure the DC bus voltage at the -DC and +DC TESTPOINT sockets on the front of the power module (see below for location).

Remove power before making or breaking cable connections. When you remove or insert a cable connector with power applied, an electrical arc may occur. An electrical arc can cause personal injury or property damage by:

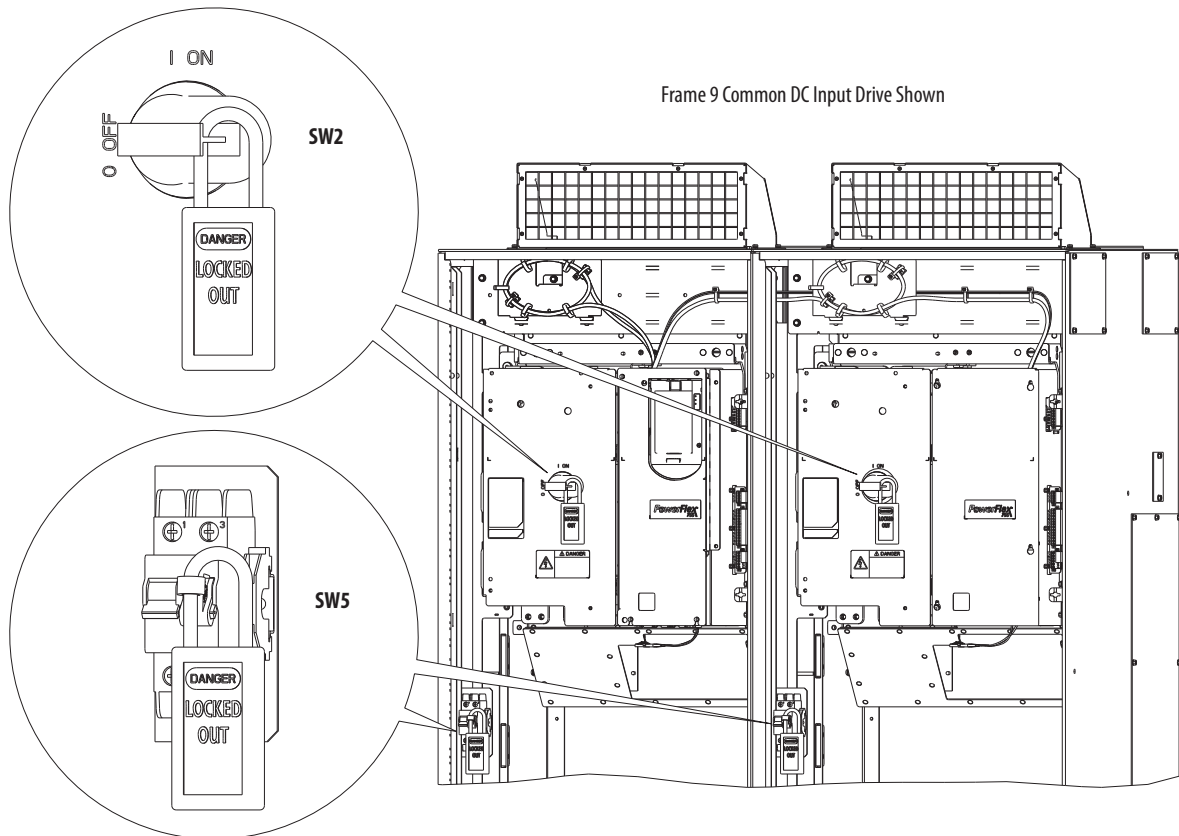
- sending an erroneous signal to your system's field devices, causing unintended machine motion
- causing an explosion in a hazardous environment

Electrical arcing causes excessive wear to contacts on both the module and its mating connector. Worn contacts may create electrical resistance.

1. Turn off and lock out all input power, including any and all external power sources. For common DC input drives only, turn off input power and lock the drive disconnect switch SW2 and circuit breaker SW5 (if used).



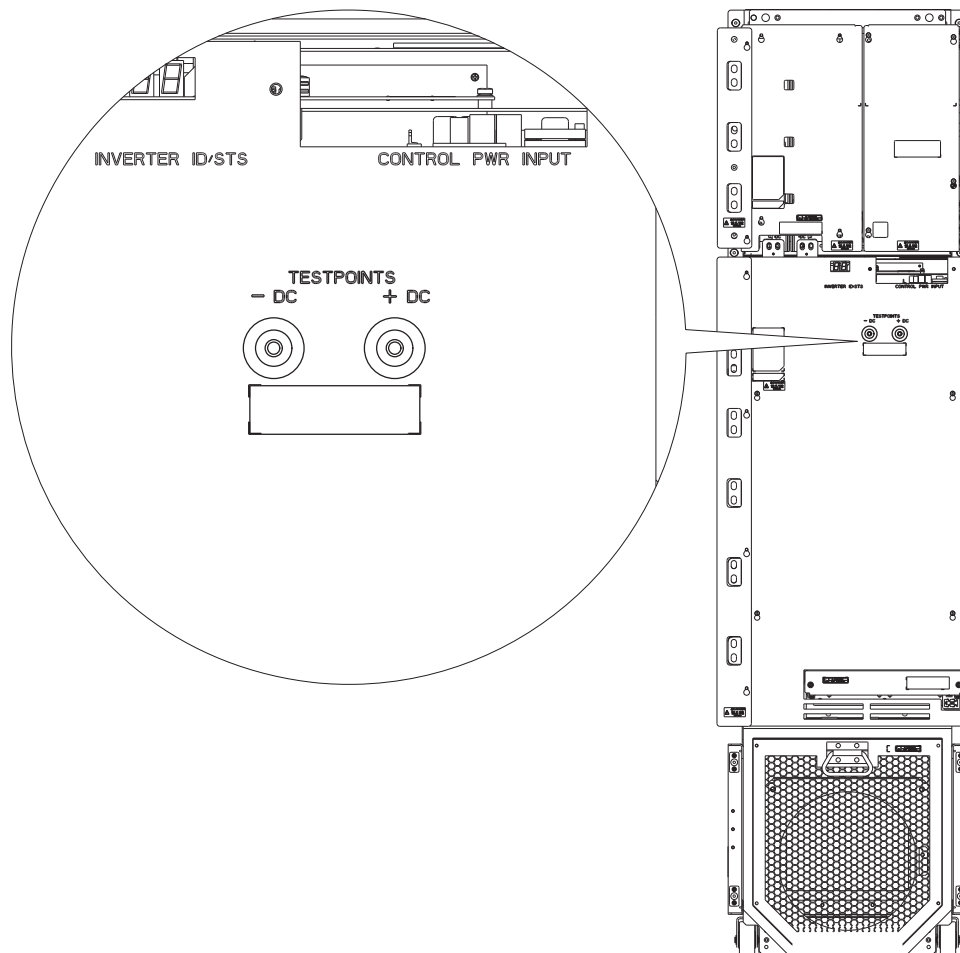
ATTENTION: To avoid an electric shock hazard when servicing the drive, a means for Lockout/Tagout of an external 120V uninterruptible power supply and/or external 120/240V power source must be provided. Or the circuit breaker SW5 must be locked and tagged. Locking and tagging the common bus precharge disconnect switch SW2 alone does not provide sufficient protection when servicing the drive.



Frame 9 Common DC Input Drive Shown

2. Wait fifteen minutes and verify that there is no voltage at the drive's input power terminals.
3. Measure the DC bus voltage at the -DC and +DC TESTPOINT sockets on the front of the power module.

Frame 8 AC Input Drive Shown



Drive Input Power Configurations

The PowerFlex 750-Series drives discussed in this manual are available as frame 8, 9, and 10 drives with either AC or common DC input. Refer to [Figure 1](#) and [Figure 2](#) on page 24 to familiarize yourself with AC versus DC input drive configurations and the main drive sections each configuration contains.

Figure 1 - AC Input Drives

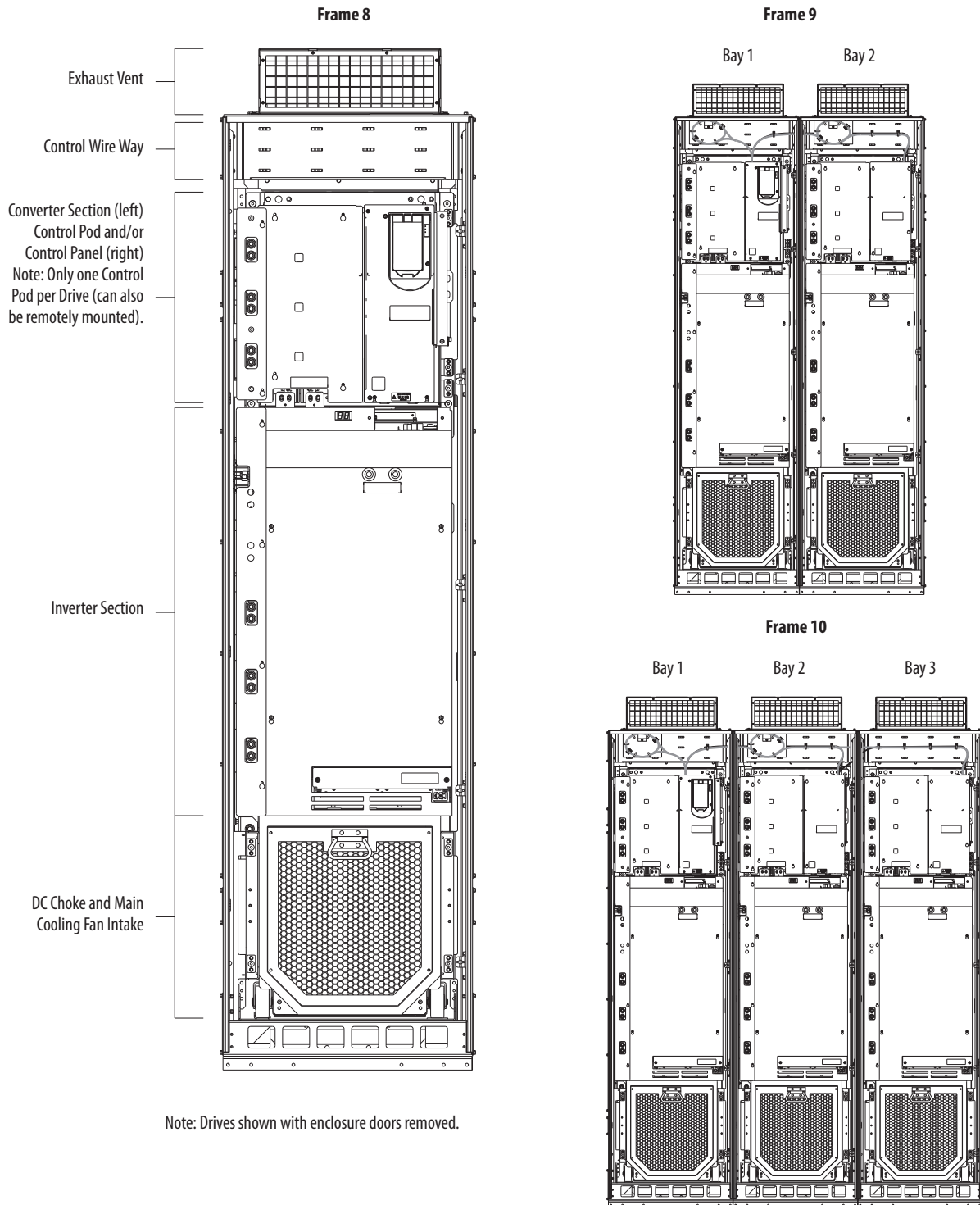


Figure 2 - Common DC Input Drives

